DOCUMENT RESUME

ED 396 507 EC 304 889

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TITLE Training State Child Service Coordinators in Creative Problem Solving.
PUB DATE 15 May 96
NOTE 35p.
PUB TYPE Reports - Evaluative/Feasibility (142)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Child Welfare; Community Programs; *Creative Thinking; Group Dynamics; *Instructional Effectiveness; Leaders; *Problem Solving; Program Effectiveness; Program Evaluation; Self Evaluation (Individuals); Social Workers; *Staff Development; Training Methods; Validity; Workshops

ABSTRACT

The preliminary findings of the evaluation of the training program, Creative Problem Solving, are presented. The training was provided through the Blumberg Center for Interdisciplinary Studies in Special Education at Indiana State University. Twenty-one state and county child service coordinators participated in the training on a voluntary basis. Participants completed a pretest measure, the "Facilitator Self-Evaluation," prior to the training and two and four months after the training. Statistical significance was obtained on six dependent variables on the evaluation instrument. However, major concerns (such as high pretest self-evaluations) regarding the validity of the instrument in this situation are raised. (Author/DB)

Training State Child Service Coordinators in Creative Problem Solving

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Prepared for

Blumberg Center for

Interdisciplinary Studies in Special Education

May 15, 1996

Abstract

The preliminary findings of the evaluation of the training program, *Creative Problem Solving*, are presented. The training was provided through the Blumberg Center for Interdisciplinary Studies in Special Education at Indiana State University. Twenty-one state and county child service coordinators participated in the training on a voluntary basis. Participants completed a pretest measure, the "Facilitator Self-Evaluation," prior to the training and two and four months after the training. Statistical significance was obtained on six dependent variables on the evaluation instrument. The design of the instrument and the threats to the validity of the instrument are discussed.

Training State Child Service Coordinators in Creative Problem Solving

Background of the Problem

Training programs are developed in many disciplines in an attempt to provide opportunities for continued learning on the job. For example, health care professionals are required to participate in continuing education to continue to meet certification and licensure requirements (Abrahamson, 1984). Professionals in mental health care and social work participate in interdisciplinary training to increase their skills in working with particular client and family populations (Sullivan & Clancy, 1990). Likewise, teachers and special educators participate in professional development programs and in-service training to increase their skills in meeting the needs of a diverse group of learners (Granlund, Steensson, Sundin, & Olsson, 1992).

Evaluation is an important component of such training programs; there are several reasons for evaluating the effects of training. For example, program developers may seek to determine if the program is accomplishing the objectives set out (Phillips, 1991). The evaluation may also serve the purpose of identifying strengths and weaknesses and improving the content and methodology of the training prior to widespread implementation.

Evaluations of training programs are designed to measure different training effects, such as participants' satisfaction

with the training, knowledge acquired through the training, or changes in behavior due to skill development from the training. Researchers have identified several different effects an evaluation may be designed to target. Figure 1 is an illustration of the possible effects.

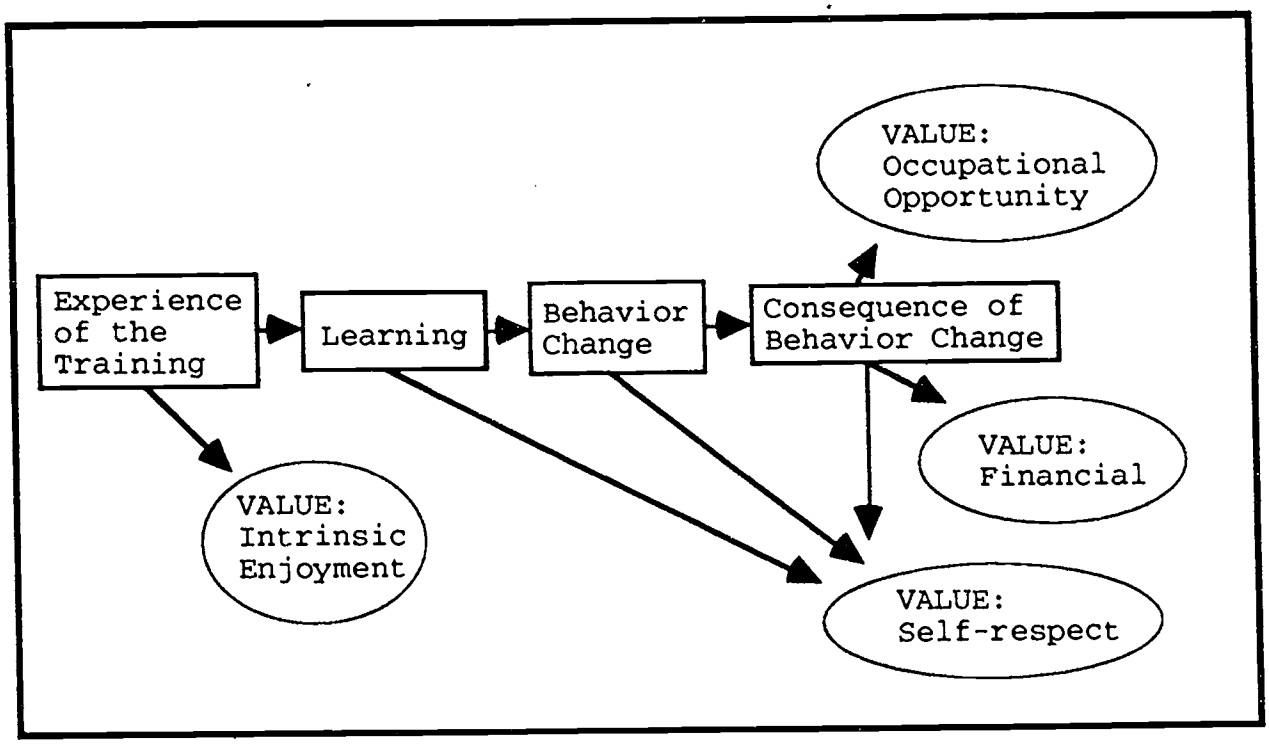

Figure 1. A Model of Training Effects (modified from Hamblin, 1974, in Patrick, 1992).

As indicated in Figure 1, an evaluator may measure participants' experience of the training (i.e., participants' reactions to the training). This may include participants' satisfaction or dissatisfaction with the materials, instructors, facility, instructional methodology, and/or content of the training. While enjoyment of the training is important to the participant, this level of measurement does not provide an indicator of

learning. Additionally, reactions to a training program are often the result of extraneous factors, including the participants' own perceived success in the training.

Beyond measurement of participants' reactions to the training, participants' learning can be measured. Participants' learning includes their knowledge of the principles, facts, techniques, and skills presented in the training. For example, it may be that greater awareness of a particular subject is the primary goal of the training. Sullivan and Clancy (1990) measured participants' ability to identify sexual abuse indicators in case studies (the information presented in their training) as a measure of program success. In the present study, the evaluation measured participants' learning as a result of participation in the training.

The timing of the measurement is important when learning is assessed. The program planners should specify specific behavioral objectives in advance regarding the length and level participants are expected to retain the information presented and (Patrick, 1992).

The third level of measurement addresses actual behavior change that is a result of learning through participation in the training. Participants must learn the material presented before it is exhibited in their behavior.

Last, the consequences of the behavior change may also be targeted for measurement. In the case of Sullivan and Clancy's (1990) research, the learning participants acquired was knowledge

of sexual abuse indicators. Although not measured in their study, measures of participants' behavior subsequent to the training might have revealed that participants were more likely to identify indicators of abuse in children they served or came into contact with. The consequence of this behavior change (i.e., the ultimate value) would be the protection of children who experience abuse. This level of evaluation has also been termed a measure of organizational change and/or organizational effectiveness (Phillips, 1991).

The instruments commonly used to measure the different effects of training include record-keeping systems, questionnaires, examinations, attitude surveys, interviews, focus groups, and observations (Phillips, 1991). Depending upon the design of the evaluation, multiple indices may be used to assess the effects of the training.

The present study is an evaluation of the training project, *Training Facilitators in Problem Solving in Community-Based Care Coordination*. The Blumberg Center for Interdisciplinary Studies in Special Education at Indiana State University (ISU) developed the training project and contracted with the Center for Studies in Creativity at Buffalo State College to present the training to Indiana state agency employees.

The impetus and source of funding for the training project is the *Indiana Collaboration Project*, which is a part of the *Indiana Consolidated Plan for Service to Children and Families*. One of the goals of the state mandated *Indiana Collaboration*

Project is to "collaboratively manage the delivery of services" to children and families in the state of Indiana. The training project involves training Indiana state and county agency employees in creative problem solving.

The design of the evaluation of the training was planned by the project coordinator and an independent researcher at ISU. The evaluation of the training targets participants' perceptions as to whether their behavior has changed as a result of the training. It was participants' perceptions of behavior change that is measured in this evaluation. It should be noted that the measurement of attitudes and perceptions is not equivalent to measuring actual behavior.

The training in creative problem solving is expected to provide state and county facilitators with knowledge and skills in group problem solving. It is expected that the knowledge and skill acquired will be applied to problem solving efforts in the work setting (e.g., in inter-agency staffings). Ultimately, it is hoped that the training will positively impact children and families who are receiving services from the coordinating agencies in the state of Indiana.

The goal of the training project is to enable Indiana State and county agency employees to

- "apply effective problem solving and solution finding principles to direct and immediate educational challenges."

The questions posed are: Will participants rate their use of group problem solving and collaboration skills higher on the

posttest following the training than prior to the training (i.e., than on the pretest)? and Will participants continue to rate their group problem solving skills high on the second posttest?

Methodology

Participants

While ninety-two state and county agency employees will participate in the training over the course of four training periods, only twenty-one participants are included in the preliminary analyses reported in this paper. These twenty-one participants are child service coordinators for the state of Indiana and counties within Indiana. They were invited to participate in the training on a voluntary basis given their employment in state agencies providing child and family services. These individuals were targeted for participation given their positions and ability to achieve the goals of the Indiana Collaboration Project. Since the participants serve as coordinators and facilitators in Step Ahead Councils, a high level of competence in leading and facilitating groups was assumed.

Training

The training in creative problem solving provided "thinking tools to use in understanding problems and opportunities, generating ideas, and developing and evaluating potential solutions." The training occurred over a five day period. It was held in a conference room in a large hotel. The scheduling of the daily sessions and a complete agenda are included in

Appendix A. Participants were preseated in small groups of 6-7 individuals, including two table facilitators who had received prior training in creative problem solving.

Each participant received a large bound manual, *Creative Approaches to Problem Solving*, which included research articles, eleven chapters on the creative problem solving process, and pull out folders to use in the training sessions. Additional handouts were provided each day of the training. Ample supplies (post-it notes, tape flags, markers, pens and pencils, notepads, masking tape, etc.) were also available each day of the training.

The media used in the presentation of the training included an overhead projector, color overheads, multiple flip charts, laminated 4' by 5' color posters, video recorders, and a portable stereo cassette player. The instructor and the table facilitators also used the following as learning tools during group activities: rope, string, pictures, recorded sounds, music, handballs, novel toys, and other items.

The method of instruction included presentations, small group activities (i.e., problem solving activities), large group activities (i.e., reflection on performance and feedback), experiential activities, modeling, role-playing, discussion, and skill practice. The training sessions were divided into smaller sessions with daily reviews of learning objectives.

Much planning was involved in the preparation of the training sessions prior to the training. The instructors and

table facilitators also met each evening following the training in debriefing sessions.

Instrument

The instrument used in assessing participants' perceptions of their group problem solving and collaboration skills was the "Facilitator Self-Evaluation." The "Facilitator Self-Evaluation" contained 34 statements regarding participants' behavior in facilitating problem solving groups. The participant was asked to respond to the statement on a 4-Point Likert scale. For example, statement 1. read "As a group facilitator, I encourage individuals to be caring, respectful, empathic, and open with each other." The directions read, "Please complete this evaluation by indicating the degree (circle the appropriate number) to which you most often engage in the following activities." The possible responses were" "Always," "Usually," "Sometimes," and "Never." Refer to Appendix B for the two page "Facilitator Self-Evaluation."

The instrument was developed specifically for the evaluation of the creative problem solving training. Items included on the instrument were based on previous research on collaboration in groups (Knoff & Riser, 1991; West & Cannon, 1988). While the statements appearing on the instrument were based in the research literature, the statements appearing on the Facilitator Self-Evaluation were reworded and the scales were different (i.e., the scale used on the Facilitator Self-Evaluation was different from

the scales on the instruments in the literature). Nonetheless, the constructs underlying the concepts were similar.

Reliability and Validity of the Instrument. Given the use of the self-evaluation questionnaire as a pretest and posttest measure, it is essential that the instrument be reliable (Phillips, 1991). Without an established reliability indice, the results obtained cannot conclusively be considered to be effects of the training. Rather, a change in scores may merely be attributed to the unreliability of the instrument.

Two appropriate methods for determining the reliability of the Facilitator Self-Evaluation are the split half method and inter-item correlations. By splitting the instrument into even and odd questions and correlating the two sections, an indice of reliability may be obtained. Additionally, correlations can be calculated between each of the items on the self-evaluation questionnaire (i.e., each item is correlated with all other items).

Research Design

A control group was not incorporated into the design of the project for the first year given that all individuals invited to participate would be allowed to do so.

While the preliminary analyses of the evaluation include group 1 only, a later evaluation will include all four groups. Refer to Appendix C for the timeline of the pretests, training, and posttests for the complete project. The dotted box signifies the data to be evaluated in this paper. While group 1 will

receive a total of five posttests, only the results of the first two posttests will be analyzed.

The participants completed the pretest measure prior to the training. Posttest #1 was mailed to participants two months following the training, and posttest #2 was mailed to participants four months following the training.

Results

Reliability of the Facilitator Self-Evaluation

The small sample on which these preliminary analyses were performed was considered too small to calculate a reliability indice for the instrument. The reliability indice(s) should be calculated prior to the evaluation of the four training groups.

Pretest Ratings

Cross tabulations of the pretest data provided a baseline of participants' perceptions of their group problem solving and collaboration skills prior to the training. As indicated in Table 1 in Appendix D, the majority of participants rated themselves high (e.g., as 'always' or 'usually' engaging in the behavior) in all areas assessed on the Facilitator Self-Evaluation before the training began. For example, 90% of all respondents responded that they always or usually communicated clearly and effectively in groups at the pretest. Similarly, 90% of all respondents indicated that they always or usually verified and reinforced group ownership of the situation at the pretest. The fact that respondents perceived that they already used the skills that were assessed on the self-evaluation questionnaire

suggests that a ceiling effect may have been operating with this particular sample of participants. The use of the 4-Point Likert scale, as opposed to a 5-, 6-, or 7-Point Likert scale created such an effect with this sample. The result of the ceiling effect would be to increase the probability of committing a Type II statistical error.

Analysis of Variance

Regarding differences in scores from pretest to posttest #1 and posttest #2, analysis of variance revealed six variables of interest. A significant difference was found between tests--pretest, posttest #1 and posttest #2--on participants' perceptions of their ability to manage the timing of problem solving activities to facilitate mutual decision making ($F(2, 37) = 7.59$, $p < .01$). Refer to the line graph in Figure 2 for the group means of each test on item 18.

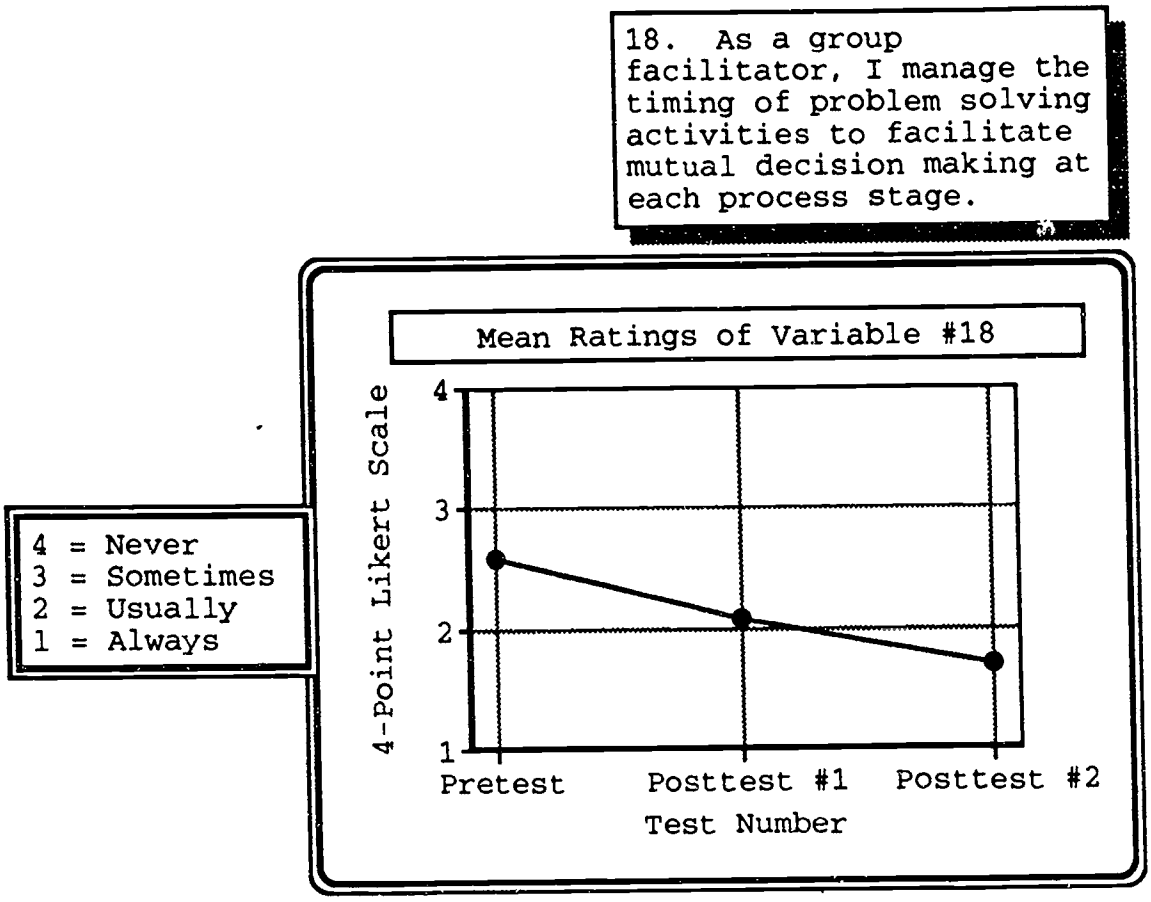

Figure 2.

Figure 2 illustrates that participants' ratings of their perceptions of their ability to manage the timing of problem solving activities increased from the pretest to the posttests. Means and standard deviations for all items on the instrument are presented in table 2 in Appendix E.

Note that a lower score on the Likert scale represents the presence of the behavior (i.e., the respondent rating herself with a "1" perceives that she "always" engages in the behavior). The legend located to the right of the graph indicates the meaning associated with the numbers on the Likert scale (e.g., a

"4" indicates that the respondent "never" engages in the behavior).

Pairwise comparisons of the pretest with the posttests were not calculated for any of hte 1-way ANOVAs, despite the important of doing so. Pairwise comparisons will be conducted in the analysis of the data on all four groups of participants. For this preliminary analysis, the direction of the change is all that is needed. The significance of the pairwise comparisions will be available in the complete analyses.

A significant difference was also found between the tests on participants' perceptions of their ability to recognize that successful and lasting solutions require common goals ($F(2, 37) = 4.99$, $p < .05$). An increase in ratings was evident from pretest to posttest #1, as illustrated in the mean ratings for the pretest and posttest #1 in Figure 3.

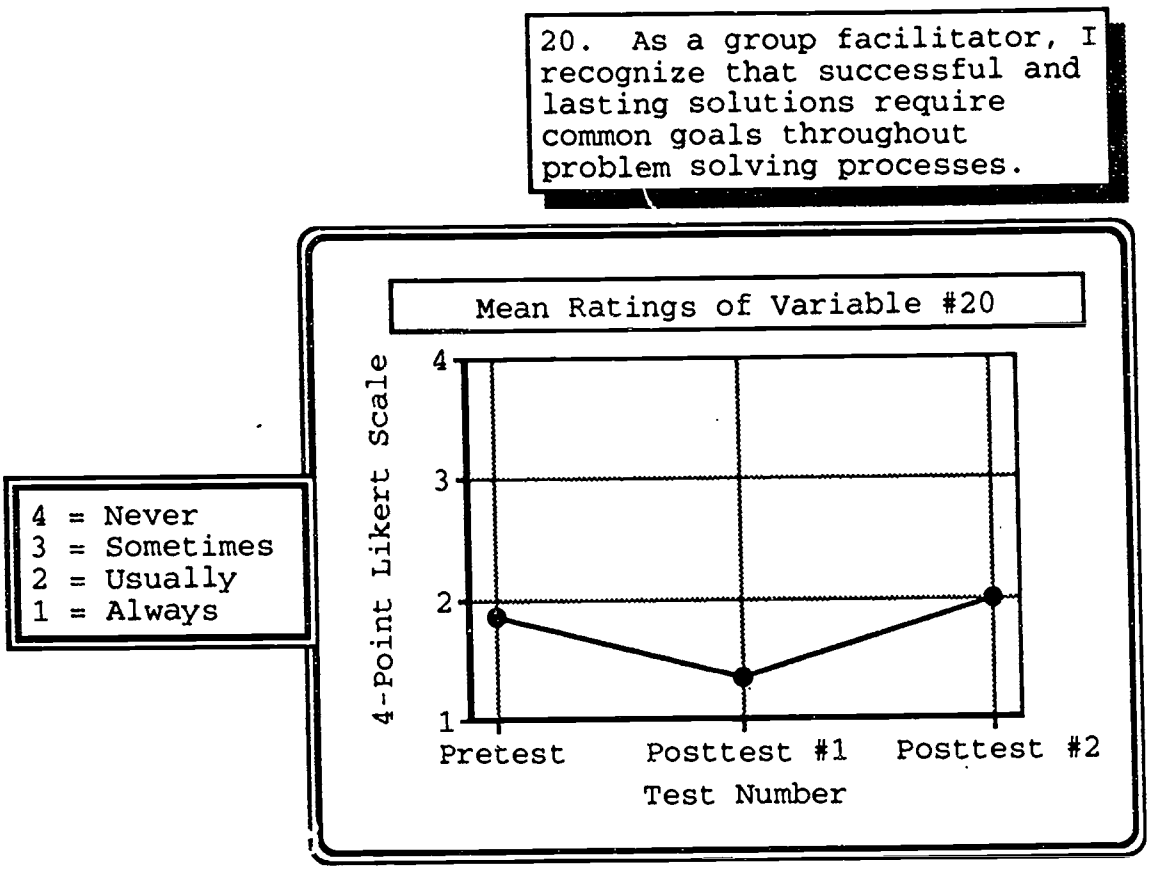

Figure 3.

This increase was not maintained from posttest #1 to posttest #2, however.

Similarly, participants rated their ability to effectively use divergent and convergent questions, significantly differently from pretest to posttest ($F(2, 37) = 4.82$, $p < .05$). Figure 4 illustrates the mean ratings per group. Examination of the means for each test reveals that participants rated themselves higher in terms of problem solving skills at posttest #1. The effect held for posttest #2.

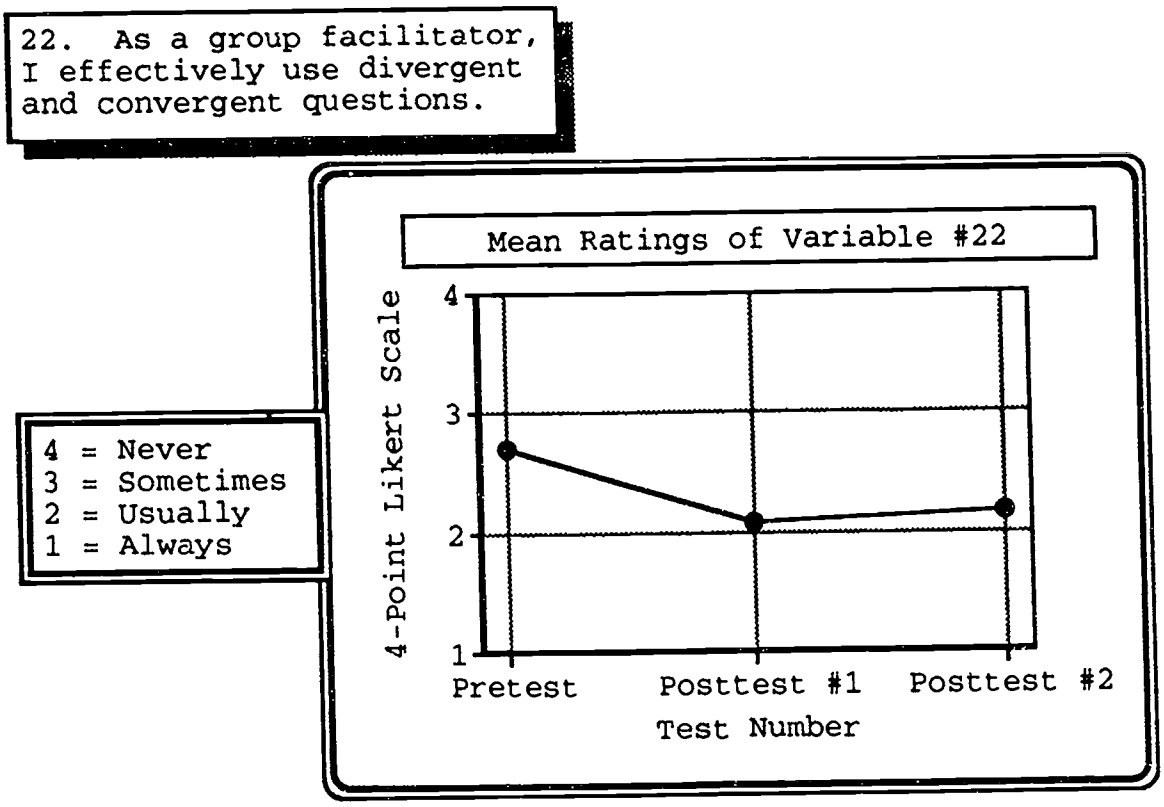

Figure 4.

Significant differences were also found between the three tests on participants' ratings of their ability to foster a "pilot" problem solving attitude with contingency plans ($F(2, 37) = 5.89$, $p < .01$). Again, participants rated themselves as more skilled at posttest #1 than at the pretest, as evident in Figure 5. The effect appeared to be maintained at posttest #2.

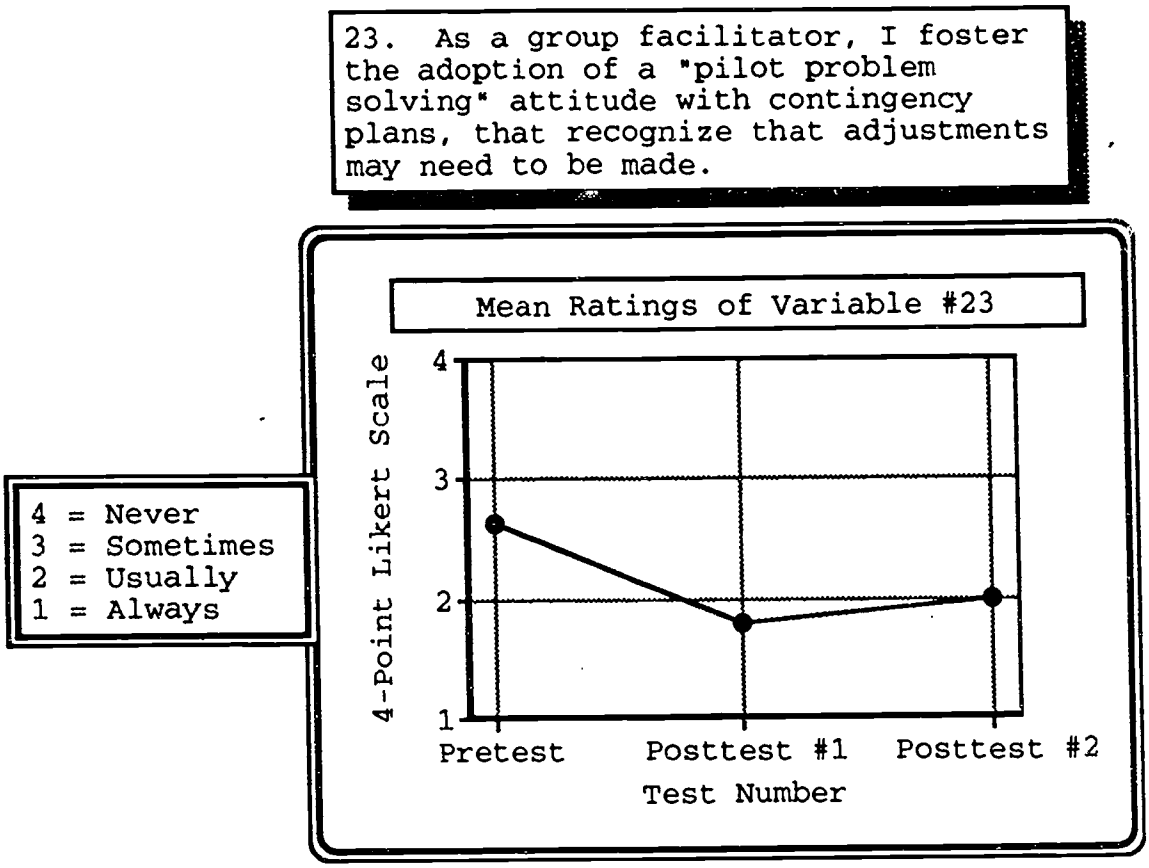

Figure 5.

Significant differences were also found between the three tests on participants' ratings of their ability to assist in the redesign, maintenance, or discontinuance of interventions ($F(2, 37) = 6.20$, $p < .01$). On this item, participants rated themselves as more skilled at posttest #1 and at posttest #2 than at the pretest, as evident in Figure 6.

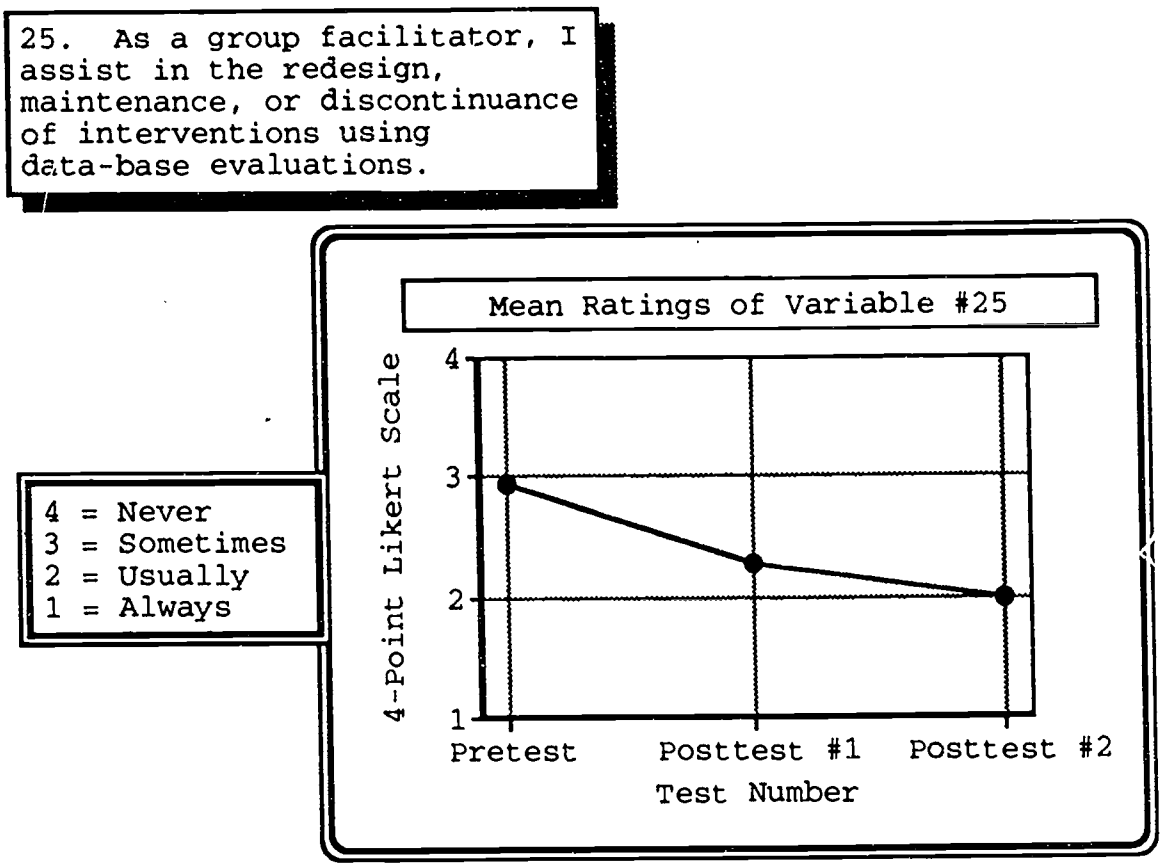

Figure 6.

Lastly, a significant difference was found between tests on participants' ratings of their ability to encourage evaluation of input, process, and outcome variables ($F(2, 36) = 3.84$, $p < .05$). Participants rated themselves as more skilled at posttest #1 and at posttest #2 than at the pretest, as evident in Figure 7.

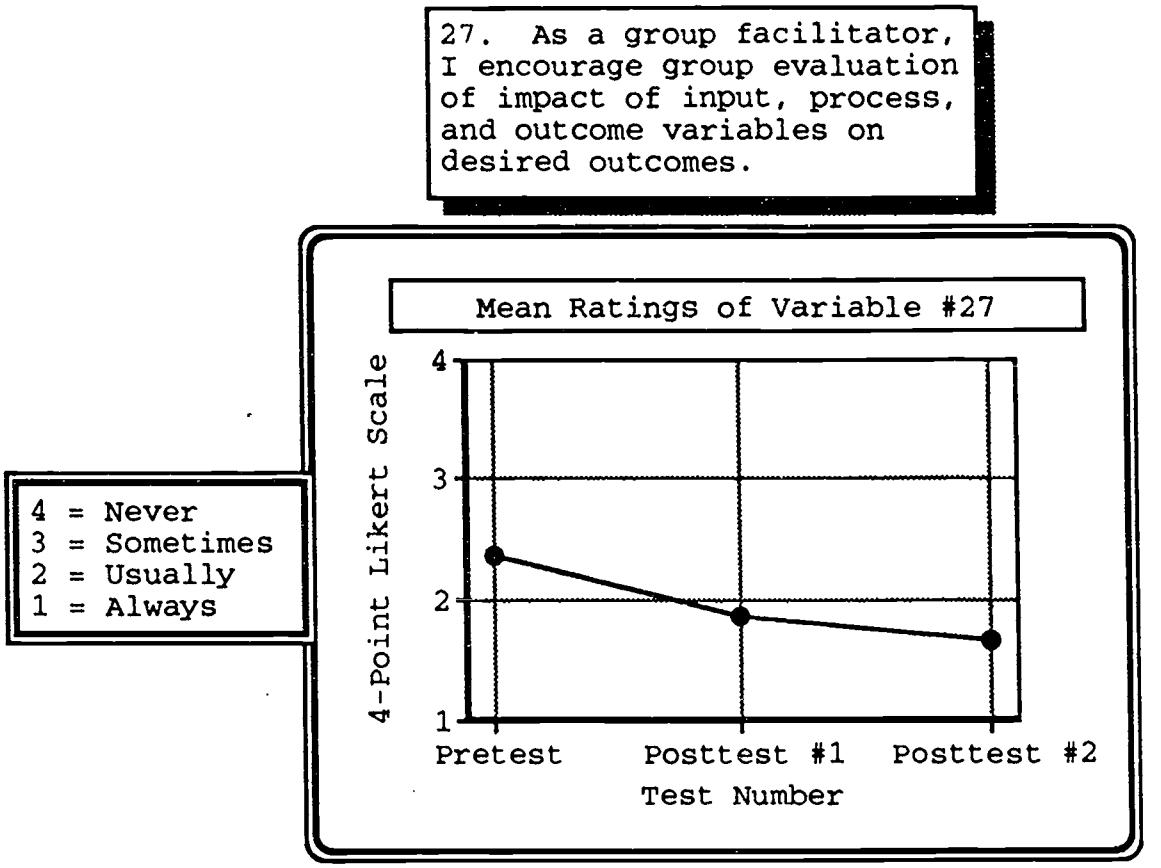

Figure 7.

VI. Discussion, Conclusions, and Recommendations

The following factors preclude a discussion of the meaning of the results obtained. Obtaining statistical significance requires an interpretation of the results as opposed to blind acceptance of the "significance" of a phenomenon. Before interpreting the meaning of the results obtained, a discussion of possible confounds is warranted. Similarly, the reliability of the instrument must be established before its use as a pre/posttest measure is justified. A discussion of these concerns ensues.

Pretest Ratings

The high self ratings on the pretest present a concern regarding the effectiveness of the "Facilitator Self-Evaluation." Since participants are expected to increase their skills as a result of the training, they may actually increase these skills without a significant difference being evident on the instrument due to the arbitrary ceiling. The ceiling effect seems to have resulted from three factors: (a) the experience leading/facilitating groups this sample appears to possess, (b) the restricted range of possible responses (i.e., the 4 point Likert scale options), and (c) the wording of the possible responses (e.g., the choice options "never" and "always" are absolute and do not represent a continuum of more and less skill).

Facilitator Self-Evaluation

Design of the Instrument. The "Facilitator Self-Evaluation" presents a concern. The desired response to each item (i.e., question) is readily apparent in that all items and scales are slanted in the same direction (i.e., each item represents the presence of a skill). As such, the respondent need not give careful attention to each item in rating themselves on each.

Further considerations are presented in the guidelines on instrument development presented in Table 3 below.

Table 3

Guidelines on Instrument Development

1. Respondents should be assured of confidentiality
2. Respondents should be assured that answers are neither correct nor incorrect
3. The directions on the instrument should be understandable
4. Instructions should include definitions of choice options (e.g., a definition of "most of the time" should be included in the instructions)
5. An estimate of the time to complete the instrument should be provided
6. Wording should be simple, clear, straight forward, and to the point
7. The instrument should be easy to read and attractive in terms of format and spacing
8. Items should be included in categories so that respondents do not have to change their point of reference
9. The favorable end of the scale should be varied so that the respondent must give careful attention to each item rather than merely responding without weighing the statement
10. Only one idea should be presented per item
11. Absolute terminology (e.g., "all" or "none") should be avoided

Reliability. As indicated, the reliability of the instrument was not calculated due to the small sample size. It should however, be calculated before the data from all four groups is analyzed.

Validity. There are several possible threats to the internal validity of the study. Certain uncontrolled factors may have directly affected the participants' ratings on the

self-evaluation posttests and hence obscured the actual training effects. Internal validity refers to whether the study is measuring what it purports to measure. One possible confound in such a pretest-posttest design is maturation effects (Patrick, 1992). Maturation pertains to changes in performance due to natural growth occurring over time. Since the participants were adults who had advanced graduate training, it is unlikely that maturation had a significant affect on performance over the six months of the study conducted thus far.

A second confound may occur when participants are posttested more than once in the pretest-posttest design. In this case, the pretest may have a transfer effect, positive or negative, on the subsequent posttest. In other words, participants may become practiced at being assessed. Such a confounding effect cannot be ruled out.

Third, another possible confound is the reactive effect of the training and the participants' knowledge that they were participating in an evaluation. This effect is otherwise known as the Hawthorne Effect. Hence, it may be the novelty of the training that produces the effect rather than the training itself.

These possible confounds can be eliminated in the future by the use of a control group. In order to reduce these effects through the use of a control group, random assignment of participants to the training and control groups is necessary. Figure 8 illustrates this experimental design.

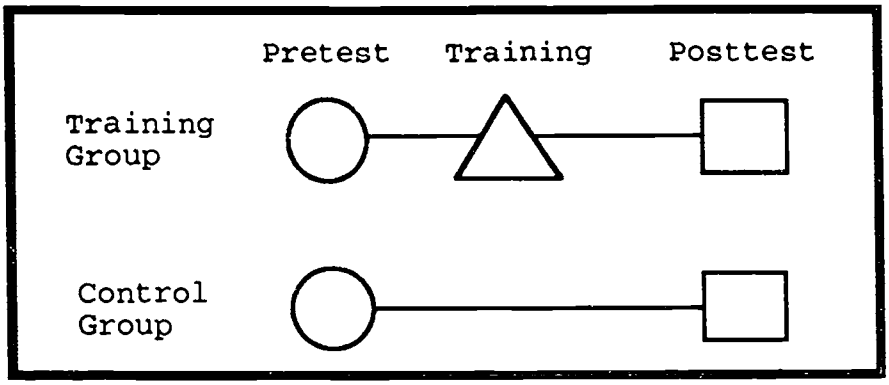

Figure 8. Experimental Design Employing a Standard, No-Treatment Control

Alternatively, an experimental design, which would be easier to implement in an applied setting, might include a second group that received the training and posttests only. See the depiction of this design in Figure 9.

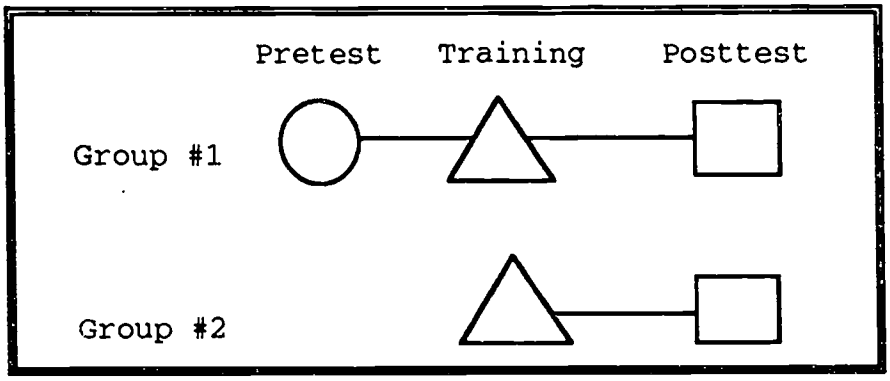

Figure 9. Experimental Design Employing Two Treatment Groups

An analysis of the differences between the posttests for the two groups would reveal any testing confounds caused by multiple administrations of the Facilitator Self-Evaluation.

These designs would, of course, be more complex given the number of training groups involved in the training project.

Aside from the highly specific group from which participants were selected is the concern over the possible differences between those selected who were accessible (i.e., able to attend the training) and those selected who were not accessible (i.e., who did not attend the training). The individuals who participated in the training may have differed on particular characteristics from those who were selected but did not participate.

Conclusion

As discussed earlier, the purpose in evaluating a training program may be to investigate the effects of training variables in a research approach. For example, using an experimental design in evaluating future creative problem solving trainings would allow for the investigation of the following variables: the effects on the duration of the training (e.g., 3-day training versus 5-day training), the effects of follow-up training, and the effects of participant characteristics.

The obvious limitation to this evaluation is that the instrument used measures perceptions as opposed to actual behaviors. And, perceptions do not necessarily correlated with behaviors. To measure participants' behaviors as a result of the training would entail a more complex evaluation design involving others' ratings (e.g., supervisors) of behavior and/or observations of behavior. Given the goal of the training

project, the measurement of participants' performance on the job namely their collaboration and problem solving skills, would be a desirable addition to the evaluation design.

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Appendix A

Day 1

Morning Session 9:00 a.m. - 12:00 Noon

- Welcome, Introductions, and Overview
- Exploring Your Personal Creative Process
- Introduction to *Creative Problem Solving*
- Conceptions and Misconceptions of Creativity
- Personal Orientation: Examining Your Creativity Style

Afternoon Session 1:00 p.m. - 6:00 p.m.

- Guidelines for *Creative Problem Solving*
- Preparing to Learn and Apply *Creative Problem Solving*
- Introduction to the Understanding the Problem Component
- Examining Stages and Tools for Identifying and Understanding Problems or Opportunities

Day 2

Morning Session 8:00 a.m. - 12:00 Noon

- Introduction to the Generating Ideas Component
- Examining and Applying Tools for Divergent Thinking
- Criteria and Creativity

Afternoon Session 1:00 p.m. - 5:00 p.m.

- Introduction to the Planning for Action Component
- Examining Tools for Developing Solutions and Planning Change

Day 3

Morning Session 8:00 a.m. - 12:00 Noon

- Qualities of an Effective Facilitator
- Conceptions of Leadership
- Debrief the Leadership Inventory Profile

Afternoon Session 1:00 p.m. - 5:00 p.m.

- *Creative Problem Solving* Tool Overview
- Task Appraisal and Process Planning

Day 4

Morning Session 8:00 a.m. - 12:00 Noon

- Practice *Creative Problem Solving* Facilitations and Debriefing

Afternoon Session 1:00 p.m. - 6:00 p.m.

- Practice *Creative Problem Solving* Facilitations and Debriefing

Day 5

Morning Session 8:00 a.m. - 12:00 Noon

- Practice *Creative Problem Solving* Facilitations and Debriefing

Afternoon Session 1:00 p.m. - 4:00 p.m.

- Ethics of *Creative Problem Solving* Facilitation
- Taking it Forward
- Closing Comments and Program Evaluation

Appendix B

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Facilitator Self-Evaluation
S. Frantz & L. Bischoff

Please complete this evaluation by indicating the degree (circle the appropriate number) to which you most often engage in the following activities.

		Always	Usually	Sometimes	Never
As a group facilitator, I...					
1.	encourage individuals to be caring, respectful, empathic, and open with each other.	1	2	3	4
2.	establish, maintain, and facilitate rapport among all individuals involved.	1	2	3	4
3.	maintain a positive self-concept and enthusiastic attitude.	1	2	3	4
4.	am willing to learn from the group and encourage the group to learn from each other.	1	2	3	4
5.	am able to manage my stress and group stress.	1	2	3	4
5a.	am flexible when the unexpected happens.	1	2	3	4
6.	remain approachable throughout the group process.	1	2	3	4
7.	respect and encourage respect of divergent viewpoints.	1	2	3	4
8.	communicate clearly and effectively.	1	2	3	4
9.	utilize effective communication skills, including active listening, questioning, and paraphrasing.	1	2	3	4
10.	invite and encourage all individuals involved in the problem solving relationship to participate.	1	2	3	4
10a.	assist groups in forming and working through stages of group development.	1	2	3	4
11.	adjust my skills to accommodate the experience of group members.	1	2	3	4
12.	effectively interpret the nonverbal communication of myself and others.	1	2	3	4
13.	effectively elicit information, share information, explore problems, set goals, and objectives.	1	2	3	4
13a.	summarize and clarify information flow.	1	2	3	4
13b.	question to promote content and process clarity.	1	2	3	4
14.	pursue issues with appropriate persistence, even if a level of discomfort is apparent.	1	2	3	4
14a.	reinforce a productive working environment.	1	2	3	4
15.	give, solicit, and reinforce continuous feedback that is specific, immediate, and objective.	1	2	3	4
15b.	make appropriate changes in my behavior based on constructive feedback.	1	2	3	4
16.	give credit and encourage consensual credit to others for their ideas and accomplishments.	1	2	3	4
17.	manage conflict and confrontation skillfully to maintain group relationships.	1	2	3	4
18.	manage the timing of problem solving activities to facilitate mutual decision making at each process stage.	1	2	3	4
18a.	establish time-lines for problem solving sessions.	1	2	3	4
18b.	provide clear task priorities and session objectives.	1	2	3	4
19.	am willing to say and am open to hear "I don't know...let's find out."	1	2	3	4

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Facilitator Self-Evaluation
(Page 2)

		Always	Usually	Sometimes	Never
As a group facilitator, I...					
20.	recognize that successful and lasting solutions require common goals throughout problem solving processes.	1	2	3	4
20a.	check with the group to verify and reinforce group ownership of situation and related content.	1	2	3	4
20b.	check with the group during the session for appropriateness of direction.	1	2	3	4
21.	generate and encourage others to generate viable alternatives through brainstorming techniques characterized by active listening, nonjudgmental responding, and appropriate consequences.	1	2	3	4
22.	effectively use divergent and convergent questions.	1	2	3	4
23.	foster the adoption of a "pilot problem solving" attitude with contingency plans, that recognize that adjustments may need to be made.	1	2	3	4
24.	remain available throughout the group process for support, modeling, and/or assistance in intervention modification.	1	2	3	4
25.	assist in the redesign, maintenance, or discontinuance of interventions using data-base evaluation.	1	2	3	4
26.	utilize continuous feedback to help the group maintain, revise, or terminate group activities.	1	2	3	4
27.	encourage group evaluation of impact of input, process, and outcome variables on desired outcomes.	1	2	3	4
28.	facilitate equal opportunities by showing respect for individual differences in appearance, race, sex, disability, ethnicity, religion, socioeconomic status, and/or ability.	1	2	3	4
29.	advocate for services that will accommodate the social, educational, and vocational needs of children and families.	1	2	3	4
30.	utilize the principles of least restrictive environment in decisions regarding services for families and children.	1	2	3	4
31.	ensure that persons involved in planning and implementing the problem solving processes are also involved in its evaluation.	1	2	3	4
32.	self-evaluate my strengths and weaknesses to modify my behavior influencing problem solving processes.	1	2	3	4
33.	remain interested in the needs and concerns of the group and systems within which the group is working.	1	2	3	4
34.	am trustworthy, honest, and maintain confidentiality.	1	2	3	4

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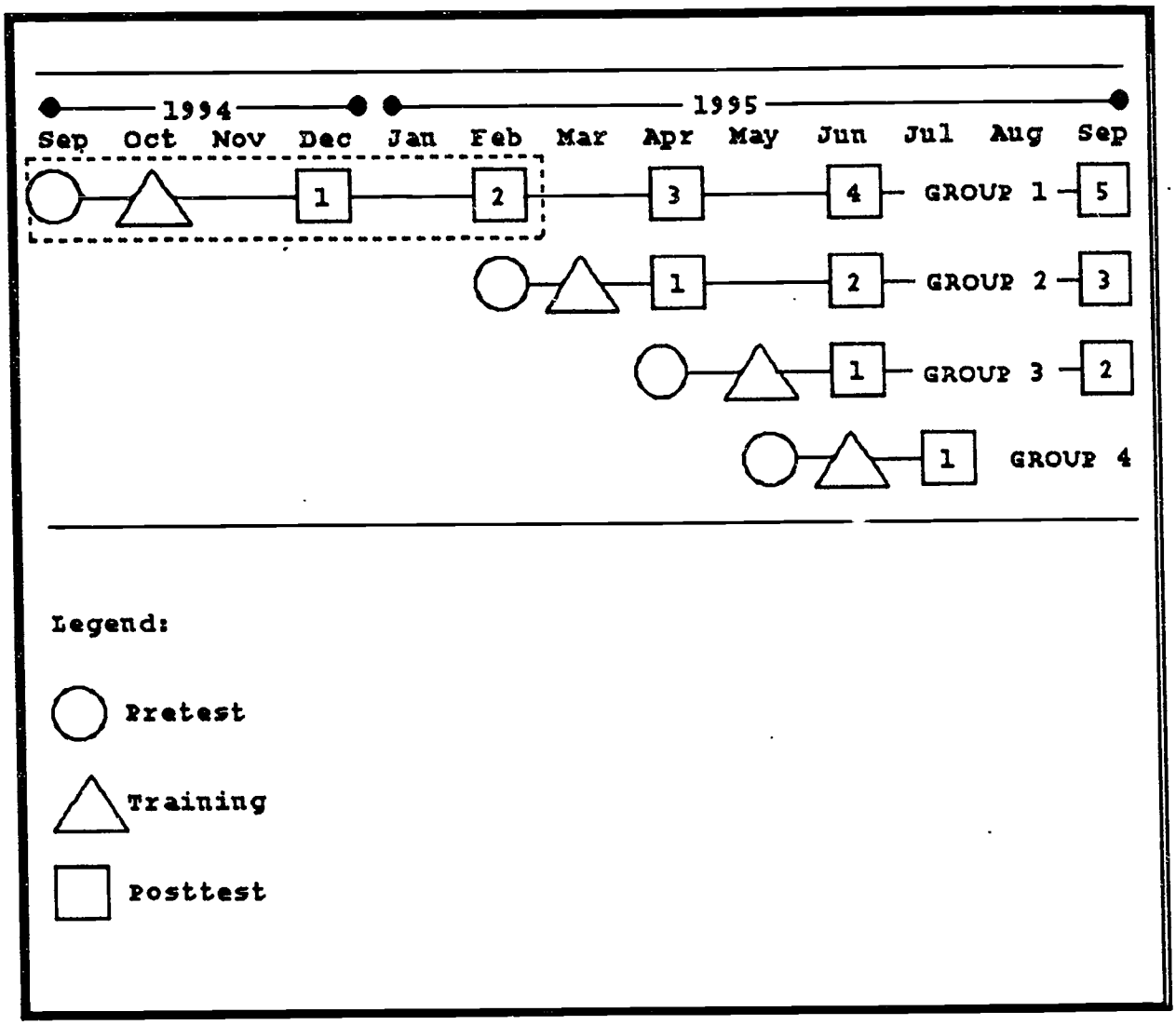
Appendix C

Timeline of Pretests, Training, and Posttests



Appendix D

Table 1

Pretest Frequencies

Item #	"Always"		"Usually"		"Always/Sometimes"	
	n =	%	n =	%	n =	%
1.	6	29	13	62	19	90
2.	6	29	11	52	17	81
3.	8	38	12	57	20	95
4.	12	57	8	38	20	95
5a.	3	14	12	57	15	71
6.	7	33	11	52	18	86
7.	8	38	13	62	21	100
8.	6	29	13	62	19	90
9.	3	33	12	57	15	71
10.	6	29	11	52	17	81
10a.	8	38	11	52	19	90
11.	3	14	11	52	14	67
12.	2	10	13	62	15	71
13.	1	5	14	67	15	71
13a.	2	10	13	62	15	71
13b.	4	19	8	38	12	57
14.	2	10	11	52	13	62
14a.	2	10	12	57	14	67
15.	5	24	12	57	17	81
15b.	1	5	10	48	11	52
16.	3	14	16	76	19	90
17.	9	43	9	43	18	86
18.	2	10	12	57	14	67
18a.	0	-	10	48	10	48
18b.	5	24	9	43	14	67
19.	6	29	9	43	15	71
20.	14	67	6	29	20	95
20a.	3	14	16	76	19	90
20b.	3	14	10	48	13	62
21.	3	14	13	62	16	76
22.	3	14	11	52	14	67
23.	0	-	7	33	7	33
24.	2	10	6	29	8	38
25.	5	24	11	52	16	76
26.	0	-	5	24	5	24
27.	4	19	8	38	12	57
28.	2	10	8	38	10	48
29.	12	57	8	38	20	95
30.	14	67	6	29	20	95
31.	17	81	3	14	20	95
32.	7	33	7	33	14	67
33.	5	24	10	48	15	71
34.	6	29	14	67	20	95

Appendix E

Table 3

Pretest and Posttest Means and Standard Deviations

	Pretest		Posttest #1		Posttest #2	
Item	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
1.	1.8	6.1560	1.4286	0.5136	1.4286	0.5345
2.	2.0	0.6489	1.5714	0.5136	2.0	0.5774
3.	1.65	0.5871	1.4286	0.5136	1.7143	0.4880
4.	1.4	0.5026	1.4286	0.5136	1.4286	0.5345
5.	2.15	0.6708	2.0	0.5547	1.7143	0.7559
5a.	1.8	0.6959	1.5714	0.5136	2.0	0.0000
6.	1.6	0.5026	1.4286	0.5136	1.7143	0.7559
7.	1.6842	0.4776	1.3846	0.5064	1.7143	1.1127
8.	2.15	0.6708	1.7857	0.5789	1.8571	0.3780
9.	1.9	0.7182	1.7857	0.4258	2.0	0.5774
10.	1.7	0.6569	1.4286	0.5136	1.4286	0.5345
10a.	2.25	0.7864	1.7857	0.6993	1.7143	0.7559
11.	2.1579	0.6021	1.8571	0.6630	1.5714	0.5345
12.	2.25	0.5501	2.0	0.5547	2.0	0.5774
13.	2.2105	0.7133	1.9286	0.4746	1.5714	0.5345
13a.	2.1579	0.7647	1.7857	0.5789	1.8571	0.6901
13b.	2.2105	0.6306	1.7857	0.8018	1.5714	0.5345
14.	2.3	0.7327	2.2857	0.7263	2.2857	0.7559
14a.	1.9474	0.7799	1.5	0.5189	1.5714	0.5345
15.	2.5	0.6882	2.0	0.7845	1.8571	0.6901
15b.	1.95	0.5104	1.7857	0.8018	1.8571	0.6901
16.	1.65	0.6708	1.50	1.5189	1.4286	0.5345
17.	2.25	0.6387	1.9286	0.6157	2.0	0.5774
18.	2.5789	0.6070	2.0714	0.4746	1.7143	0.4880
18a.	2.1	0.7881	1.8571	0.5345	2.0	0.5774
18b.	2.0	1.7947	1.4615	0.5189	1.5714	0.5345
19.	1.3	0.4702	1.3571	0.4972	1.7143	0.7559
20.	1.85	0.4894	1.3571	0.4972	2.0	0.6325
20a.	2.2	0.6959	1.7143	0.4688	1.8333	0.7528
20b.	2.05	0.6048	1.7857	0.5789	1.6667	0.5164
21.	2.2	0.7678	1.6429	0.6333	1.8333	0.4082
22.	2.7	0.5712	2.0714	0.6157	2.1667	0.7528
23.	2.6316	0.8951	1.7857	0.4258	2.0	0.6325
24.	1.95	0.6863	1.6154	0.6504	1.6667	0.5164
25.	2.95	0.6863	2.2857	0.7263	2.0	0.6325
26.	2.2	0.7678	1.7857	0.5689	1.8333	0.4082
27.	2.3684	0.6840	1.8571	0.6630	1.6667	0.5164
28.	1.45	0.6048	1.4286	0.5136	1.6667	0.5164
29.	1.4	0.5982	1.4286	0.5136	1.1667	0.4082
30.	1.35	0.7452	1.3571	0.4972	1.1667	0.4082
31.	2.0	0.9177	1.50	0.5189	1.6667	0.5164
32.	2.0	0.7454	1.4286	0.6462	2.0	0.6325
33.	1.7	0.4702	1.4286	0.5136	1.3333	0.5164
34.	1.4	0.5982	1.1429	0.3631	1.1667	0.4082